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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,611

11/04/2005

Boon Chew Ng

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EXAMINER

MEHTA, MEGHA S

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

05/27/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/531,611	Applicant(s) NG ET AL.	
	Examiner MEGHA MEHTA	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-27 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 13, 18-21 and 23-27 is/are rejected.
- 7) ☒ Claim(s) 14-17 and 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/14/2005; 11/04/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) was submitted on 4/14/2005 and 11/04/2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the IDS is being considered by the examiner. Please refer to the applicant's copy of the 1449 submitted herewith.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in the application, and priority to October 14, 2002 has been granted.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13, 18-21 and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-148395 (English language equivalent US 6,413,850 Ooroku et al used for citations) in view of US 5,551,216 McGill.

Regarding claims 13 and 21, Ooroku teaches a base plate with a ball grid array template and holes, capable of moving in two directions and a ball supply bin in column 8, line 60 to column 9, line 65. Ooroku also teaches the method where balls are supplied in the bin, the base plate is pivoted in a first direction, allowing balls to fill the holes, then pivoting back in the

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opposite direction and returning the supply bin to its original position in column 8, line 60 to column 9, line 65.

Ooroku teaches the method and the base plate and balls of the apparatus. Ooroku does not teach the motor required for the apparatus. McGill teaches a motor used to move the solder ball bin in column 3, lines 9-12.

It would have been obvious to combine Ooroku and McGill because they both teach methods of forming ball arrays. It would have been obvious to include the motor of McGill in the apparatus of Ooroku because a motor aids in controlling the ball supply bin as admitted in the applicant's specification on page 4.

Regarding claims 18, 19, 23 and 24, Ooroku teaches pivoting between 15 and 30 degrees in the first direction, and then pivots the same amount back in the second direction to return to the original position in column 8, lines 60-63.

Regarding claim 20, Ooroku teaches a vacuum in column 12, lines 49-55.

Regarding claims 25-27, Ooroku teaches the base plate returning to horizontal in column 9, lines 60-65. Ooroku also teaches the base plate moving in a clockwise then counterclockwise direction in figure 4.

Allowable Subject Matter

5. Claims 14-17 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach using a gate at the end of the solder supply bin. The gate pivots upon contact with balls when returning to the original position. JP 2001-148395 (US

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6,413,850 Ooroku et al) teaches a rectangular frame, which does not teach or suggest an enclosure with a gate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEGHA MEHTA whose telephone number is (571)270-3598.

The examiner can normally be reached on Monday to Friday 7:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Megha Mehta/
Examiner, Art Unit 1793

/Jerry A Lorengo/
Supervisory Patent Examiner, Art Unit
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